27; page 13, lines 14-18; and page 15, lines 13-17).

2. Claim 3 is dependent from independent claim 1 and recites that the set of heuristics include as parameters; processor utilization (Page 6, lines 6-10; page 7, lines 5-11; page 8, lines 8-10 and 16-18; page 9, lines 15-24; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), statistics including discards (page 7, lines 5-11; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; page 15, lines 7-10; and Figure 3 at 320) and frame check sequence (FCS) errors (page 7, lines 5-11; page 8, lines 12-18; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, lines 28-30) and number of broadcast (page 7, lines 5-11; page 8, lines 12-18; and page 12, lines 24-27), and traps (page 7, lines 5-11; page 8, lines 12-18; page 9, lines 15-24; page 12, lines 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 15, lines 7-10; and Figure 3 at 320), received as both solicited and unsolicited messages from the device (page 6, lines 6-10 and 19-25; page 7, lines 5-11 and 14-29; page 8, lines 8-10 and 12-18; page 9, lines 15-24; page 12, lines 7-10 and 17-27; page 12, line 32, through page 13, line 7; page 13, line 14, through page 14, line 2; page 14, lines 11-15 and 19-25; page 14, line 28, through page 15, line 2; page 15, lines 7-10 and 13-17; and Figure 3 at 320).

3. Claim 4 is dependent from independent claim 1 and recites that the network management station further includes program instructions that execute to analyze unsolicited messages initiated from the device to a management program (page 5, lines 27-33; page 6, lines 4-10, 12-16, and 22-27; page 12, lines 3-

7

7; page 12, line 32, through page 13, line 7; page 13, lines 19-23; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), the unsolicited messages selected from the group of messages reporting successful events (Page 6, lines 1-6; page 9, lines 8-12; and page 12, lines 10-14), messages reporting a traffic threshold (page 6, lines 1-4 and 6-12; page 9, lines 12-24; page 10, line 28, through page 11, line 2; page 12, lines 10-14; and page 14, lines 16-25), and messages reporting a non-functioning component on the device (page 6, lines 1-4 and 12-14; page 9, lines 15-24; and page 12, lines 10-14).

4.   Claim 5 is dependent from independent claim 1 and recites that the network management station further includes program instructions that execute to collectively analyze all of the collected and received information, both solicited and unsolicited, in order to formulate a health measurement for the device and for the network (Abstract; page 4, lines 5-11; page 6, lines 17-27; page 7, lines 3-13; page 7, line 30, through page 10, line 3; page 10, line 11, through page 11, line 2; page 12, lines 15-32; page 13, line 14, through page 15, line 2; page 15, lines 10-24; Figure 2 at 240; and Figure 3 at 330).

5.   Claim 6 is dependent from independent claim 1 and recites that the network management station further includes program instructions that execute to assign pre-selected weight values to the collected and received information, both solicited and unsolicited, as part of an applied heuristic (page 8, lines 16-26; page 9, lines 15-24; page 12, lines 27-32; and page 15, lines 13-17) and to use the weight values to provide the health measurement (page 8, lines 26-28; and page 9, lines 24-28).

8

6. Claim 7 is dependent from dependent claim 6 and recites that the network management station further includes program instructions that execute to initiate network actions, based on the health measurement, to avoid potential issues with the device and the network (page 7, lines 21-29; page 9, lines 4-7 and 28-32; and page 14, lines 25-27).

7. Claim 8 is dependent from independent claim 1 and recites that the network management station further includes program instruction that execute to implement different weight values to solicited and unsolicited information as parameters to the set of heuristics as suited to a particular type of network device (page 8, lines 16-28; page 9, lines 15-24; page 12, lines 27-32; page 15, lines 13-24).

8. Claim 9 is dependent from independent claim 1 and recites that the network management station further includes program instruction that execute to implement different weight values to solicited and unsolicited information as parameters to the set of heuristics as suited to a particular type of network (page 8, lines 16-28; page 9, lines 15-24; page 12, lines 27-32; page 15, lines 13-24).

9. Claim 10 is dependent from independent claim 1 and recites that the device and the station are connected over a LAN (page 4, lines 12-21; page 11, lines 21-23; and Figure 1).

10. Claim 11 is dependent from independent claim 1 and recites that the device and the station are connected over a wide area network (WAN) (page 4, lines 12-14; page 11, lines 21-23; and Figure 1).

B.   Independent claim 12

Independent claim 12 recites a network management station (page 4, lines 26-31; page 5, lines 9-11 and 14-18; page 6, lines 28-33; page 7, line 33, through page 8, line 3; page 10, lines 5-7 and 11-12; page 11, lines 21-27; page 11, line 31, through page 12, line 2; page 12, lines 4-7; and Figure 1 at 112) that includes a processor (page 5, lines 8-13 and 16-18) and a memory coupled to the processor (page 5, lines 8-13 and 16-18).

The network management station also includes program instructions provided to the memory and executable by the processor (page 5, lines 14-20; page 10, lines 3-10; page 11, lines 4-12) to poll a device, connected to the network management station over a network, with network management messages (Abstract; page 3, line 32, through page 4, line 3; page 4, line 12, through page 5, line 7; page 5, lines 24-26; page 11, lines 18-29; page 15, lines 5-7; Figure 1 at 100, 110-1, 110-2, 110-3, 110-4, 110-5, 110-6, 110-7, 110-8, 110-9, 114-1, . . ., 114-N, 115-1, . . ., 115-M, 116-1, 116-2, 116-3, 116-4, 118-1, 118-2, 118-3, 118-4, 118-5, and 120; Figure 2 at 210; and Figure 3 at 310), receive memory utilization (page 6, lines 6-10; page 7, lines 5-11; page 8, lines 10-12 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 10, line 31, through page 11, line 2; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), buffer utilization (page 7, lines 5-11; page 8, lines 12-14 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 12, lines 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10;

10

and Figure 3 at 320), local area network (LAN) utilization (page 6, lines 6-10; page 10, line 31, through page 11, line 2; and page 12, lines 7-10), and cyclical redundancy checking (CRC) information (page 7, lines 5-11; page 8, lines 12-14; page 10, lines 22-26; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, lines 28-30) in response to the polling and as unsolicited information initiated and transmitted from the device (Abstract; page 3, line 32, through page 4, line 4; page 5, line 21, through page 6, line 16; page 6, line 25, through page 7, line 2; page 7, lines 5-11 and 14-21; page 8, lines 10-15; page 9, lines 15-24; page 11, line 30, through page 12, line 14; page 12, lines 21-27; page 12, line 32, through page 13, line 7; page 13, line 14, through page 14, line 2; page 15, lines 7-10; Figure 2 at 220 and 230; and Figure 3 at 320), and apply heuristics to the received memory utilization, buffer utilization, LAN utilization, and CRC information from the polling and unsolicited transmissions collectively to determine a health of the device (Abstract; page 4, lines 5-8; page 6, lines 6-12 and 17-27; page 7, lines 3-13; page 7, line 30, through page 10, line 3; page 10, line 11, through page 11, line 2; page 12, line 15, through page 13, line 6; page 13, line 14, through page 15, line 2; page 15, lines 10-24; Figure 2 at 240; and Figure 3 at 330).

Independent claim 12 is argued together with dependent claims 13-17.

1.   Claim 13 is dependent from independent claim 12 and recites that the network management station further includes program instructions which execute to display a visual indicator of the health of the device (page 9, lines 24-28; page 10, lines 11-27; page 12, lines 17-24; page 13, line 25, through page 14, line 2; page 14, lines 25-27; and page 14, line 31, through page 15, line 2).

11

2.   Claim 14 is dependent from dependent claim 13 and recites that the network management station further includes program instructions which execute to display additional detail report information upon a selection of the visual indicator (page 8, lines 26-28; page 9, lines 4-7 and 24-28; page 10, line 28, through page 11, line 2; and page 14, lines 25-27).

3.   Claim 15 is dependent from independent claim 12 and recites that the network management station further includes program instructions that execute to register, as a parameter to the applied heuristics, that data traffic through a port of the device is being underutilized (page 6, lines 1-4; page 9, lines 12-15; and page 12, lines 10-14).

4.   Claim 16 is dependent from dependent claim 15 and recites that the network management station further includes program instructions that execute to register, as a parameter to the applied heuristics, that the data traffic through a port on another network device is overburdened (page 6, lines 1-4 and 6-12; page 9, lines 15-24; page 10, line 28, through page 11, line 2; page 12, lines 10-14; and page 14, lines 16-25).

5.   Claim 17 is dependent from dependent claim 16 and recites that the network management station further includes program instructions that execute to initiate an action based on the determined health of device in order to avoid a problem on the device and the network (page 7, lines 21-29; page 9, lines 4-7 and 28-32; and page 14, lines 25-27).

C.   Independent claim 18

Independent claim 18 recites a method for network and network device

12

monitoring that includes transmitting a network management message to a device

(Abstract; page 3, line 32, through page 4, line 3; page 4, line 12, through page 5,

line 7; page 5, lines 24-26; page 11, lines 18-21 and 23-29; page 15, lines 5-7;

Figure 1 at 110-1, 110-2, 110-3, 110-4, 110-5, 110-6, 110-7, 110-8, 110-9, 114-1, . .

., 114-N, 115-1, . . ., 115-M, 116-1, 116-2, 116-3, 116-4, 118-1, 118-2, 118-3, 118-

4, 118-5, and 120; Figure 2 at 210; and Figure 3 at 310), collecting response

information from the device based on the network management message (Abstract;

page 3, line 32, through page 4, line 3; page 5, lines 21-26; page 6, line 28, through

page 7, line 2; page 7, lines 14-21; page 11, line 30, through page 12, line 2; page

13, lines 8-12; page 15, lines 7-10; Figure 2 at 220; and Figure 3 at 320), receiving

unsolicited information from the device (Abstract; page 4, lines 3-4; page 5, line 27,

through page 6, line 16; page 6, line 25, though page 7, line 2; page 7, lines 14-21;

page 12, lines 3-14; page 12, line 32, through page 13, line 7; page 15, lines 7-10;

Figure 2 at 230; and Figure 3 at 320), and analyzing the response information and

the unsolicited information, which include information regarding device memory

utilization (page 6, lines 6-10; page 7, lines 5-11; page 8, lines 10-12 and 16-18;

page 9, lines 15-24; page 10, lines 22-26; page 10, line 31, through page 11, line 2;

page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6;

page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10;

and Figure 3 at 320), buffer utilization (page 7, lines 5-11; page 8, lines 12-14 and

16-18; page 9, lines 15-24; page 10, lines 22-26; page 12, lines 24-27; page 12, line

32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14,

line 2; page 15, lines 7-10; and Figure 3 at 320), local area network (LAN)

13

utilization (page 6, lines 6-10; page 10, line 31, through page 11, line 2; and page 12, lines 7-10), and cyclical redundancy checking (CRC) (page 7, lines 5-11; page 8, lines 12-14; page 10, lines 22-26; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, lines 28-30), according to a set of heuristics to provide a health measurement of the device (Abstract; page 4, lines 5-8; page 6, lines 6-12 and 17-27; page 7, lines 3-17; page 7, line 30, through page 10, line 3; page 10, line 11, through page 11, line 2; page 12, lines 7-10; page 12, line 15, through page 13, line 6; page 13, line 14, through page 15, line 2; page 15, lines 7-24; Figure 2 at 240; and Figure 3 at 320 and 330).

Independent claim 18 is argued together with dependent claims 19-29.

1.   Claim 19 is dependent from independent claim 18 and recites that the method further includes transmitting an SNMP message to the device (page 3, lines 7-11; page 5, lines 21-26; page 6, lines 19-22 and 28-32; page 7, lines 17-21; page 11, lines 18-21 and 24-29; and page 13, lines 8-10 and 15-18).

2.   Claim 20 is dependent from dependent claim 19 and recites that the method further includes receiving return information contained in a management information base (MIB) of the device (page 6, line 32, through page 7, line 2; page 11, lines 27-29; and page 13, lines 8-10).

3.   Claim 21 is dependent from independent claim 18 and recites that the method further includes transmitting an ICMP ping to the device (page 3, lines 7-11; page 5, lines 21-26; page 6, lines 19-22; page 7, lines 17-21; page 11, lines 18-21; and page 13, lines 10-12 and 15-18).

4.   Claim 22 is dependent from independent claim 18 and recites

14

that the method further includes receiving information using a telnet protocol (page 3, lines 7-11).

5.   Claim 23 is dependent from independent claim 18 and recites that the method further includes receiving traps from the device (page 7, lines 5-11 and 14-17; page 8, lines 12-14 and 16-18; page 9, lines 15-24; page 12, lines 24-27; page 12, line 32, through page 13, line 7; page 13, lines 21-23; page 15, lines 7-10; and Figure 3 at 320).

6.   Claim 24 is dependent from independent claim 18 and recites that receiving unsolicited information includes unsolicited information relating to processor utilization (page 6, lines 6-10; page 7, lines 5-11 and 14-21; page 8, lines 8-10 and 16-18; page 9, lines 15-24; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320) and errors (page 7, lines 5-11 and 14-21; page 8, lines 12-14; page 9, lines 15-24; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 7; page 15, lines 7-10; and Figure 3 at 320).

7.   Claim 25 is dependent from independent claim 18 and recites that receiving unsolicited information from the device includes receiving messages initiated from the device to a management program (page 5, lines 27-33; page 6, lines 4-10, 12-16, and 25-27; page 12, lines 3-7; page 12, line 32, through page 13, line 7; page 13, lines 19-23; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), including messages selected from the group of messages reporting successful events (page 6, lines 1-6; page 9, lines 8-12; and page 12, lines 10-14), messages reporting a traffic threshold (page 6, lines 1-4 and 6-12; page 9,

15

lines 12-24; page 10, line 28, through page 11, line 2; page 12, lines 10-14; and page 14, lines 16-25), and messages reporting a non-functioning component on the device (page 6, lines 1-4 and 12-14; page 9, lines 15-24; and page 12, lines 10-14).

8.   Claim 26 is dependent from independent claim 18 and recites that the method further includes receiving a message, initiated from the device to a management program, which reports that a packet of data has been successfully sent from a port on the device (page 5, line 27, through page 6, line 6; page 6, lines 25-27; page 9, lines 8-12; and page 12, lines 3-7 and 10-14).

9.   Claim 27 is dependent from independent claim 18 and recites that the method further includes receiving a message, initiated from the device to a management program, which reports that the device is over burdened with traffic and may crash (page 5, lines 27-33; page 6, lines 1-4, 6-12, and 25-27; page 9, lines 15-24; page 10, line 28, through page 11, line 2; page 12, lines 3-7 and 10-14; and page 14, lines 16-25).

10.   Claim 28 is dependent from independent claim 18 and recites that the method further includes receiving a message, initiated from the device to a management program, which reports that a port on the device is not functioning (page 5, line 27, through page 6, line 4; page 6, lines 12-14 and 25-27; page 9, lines 15-24; page 12, lines 3-7; and page 12, lines 10-14).

11.   Claim 29 is dependent from independent claim 18 and recites that analyzing according to a set of heuristics includes a heuristic having parameters selected from the group of a processor utilization (page 6, lines 6-10; page 7, lines 5-11 and 14-17; page 8, lines 8-10 and 16-18; page 9, lines 15-24; page 12, lines 7-

16

10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), a link up/down status (page 6, lines 6-10; page 7, lines 5-11 and 14-17; page 8, lines 12-14; page 9, lines 15-24; page 12, lines 17-21 and 24-27; page 15, lines 7-10; and Figure 3 at 320), a trap receipt (page 7, lines 5-11, 14-17, and 22-29; page 8, lines 12-14 and 16-18; page 9, lines 15-24; page 12, lines 24-27; page 12, line 32, through page 13, line 6; page 13, lines 21-23; page 15, lines 7-10; and Figure 3 at 320), a discard receipt (page 7, lines 5-11 and 14-17; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; page 15, lines 7-10; and Figure 3 at 320), and a FCS statistic (page 7, lines 5-11 and 14-17; page 8, lines 12-14; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, line 28, through page 15, line 2).

D.   Independent claim 30

Independent claim 30 recites a method for network and network device monitoring that includes polling a device with network management messages (Abstract; page 3, line 32, through page 4, line 3; page 4, line 12, through page 5, line 7; page 5, lines 24-26; page 11, lines 18-21 and 23-29; page 15, lines 5-7; Figure 1 at 110-1, 110-2, 110-3, 110-4, 110-5, 110-6, 110-7, 110-8, 110-9, 114-1, .. ., 114-N, 115-1, . . ., 115-M, 116-1, 116-2, 116-3, 116-4, 118-1, 118-2, 118-3, 118-4, 118-5, and 120; Figure 2 at 210; and Figure 3 at 310), receiving memory utilization (page 6, lines 6-10; page 7, lines 5-11; page 8, lines 10-12 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 10, line 31, through page 11, line 2; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6;

17

page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10;

and Figure 3 at 320), buffer utilization (page 7, lines 5-11; page 8, lines 12-14 and

16-18; page 9, lines 15-24; page 10, lines 22-26; page 12, lines 24-27; page 12, line

32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14,

line 2; page 15, lines 7-10; and Figure 3 at 320), local area network (LAN)

utilization (page 6, lines 6-10; page 10, line 31, through page 11, line 2; and page

12, lines 7-10), and cyclical redundancy checking (CRC) information (page 7, lines

5-11; page 8, lines 12-14; page 10, lines 22-26; page 12, lines 7-10 and 24-27; page

12, line 32, through page 13, line 6; and page 14, lines 28-30) in response to the

polling and as unsolicited information initiated and transmitted from the device

(Abstract; page 3, line 32, through page 4, line 4; page 5, line 21, through page 6,

line 16; page 6, line 25, through page 7, line 2; page 7, lines 5-11 and 14-21; page 8,

lines 10-15; page 9, lines 15-24; page 11, line 30, through page 12, line 14; page 12,

lines 21-27; page 12, line 32, through page 13, line 7; page 13, line 14, through page

14, line 2; page 15, lines 7-10; Figure 2 at 220 and 230; and Figure 3 at 320), and

applying heuristics to the received memory utilization, buffer utilization, LAN

utilization, and CRC information from the polling and unsolicited transmissions

collectively to determine a health of the device and the network (Abstract; page 4,

lines 5-11; page 6, lines 6-12 and 17-27; page 7, lines 3-13; page 7, line 30, through

page 10, line 3; page 10, line 11, through page 11, line 2; page 12, line 15, through

page 13, line 6; page 13, line 14, through page 15, line 2; page 15, lines 10-24;

Figure 2 at 240; and Figure 3 at 330).

Independent claim 30 is argued together with dependent claims 31-32.

1. Claim 31 is dependent from independent claim 30 and recites that the method further includes displaying a visual indicator of the determined health (page 9, lines 24-28; page 10, lines 11-27; page 12, lines 17-24; page 13, line 25, through page 14, line 2; page 14, lines 25-27; and page 14, line 31, through page 15, line 2).

2. Claim 32 is dependent from dependent claim 31 and recites that the method further includes accessing additional report information by selecting the visual indicator (page 8, lines 26-28; page 9, lines 4-7 and 24-28; page 10, line 28, through page 11, line 2; and page 14, lines 25-27).

E. Independent claim 33

Independent claim 33 recites a computer readable medium having instructions (page 5, lines 14-20; page 10, lines 3-10; page 11, lines 4-12) for causing a device to perform a method. The method includes transmitting a network management message to a device (Abstract; page 3, line 32, through page 4, line 3; page 4, line 12, through page 5, line 7; page 5, lines 24-26; page 11, lines 18-21 and 23-29; page 15, lines 5-7; Figure 1 at 110-1, 110-2, 110-3, 110-4, 110-5, 110-6, 110-7, 110-8, 110-9, 114-1, . . ., 114-N, 115-1, . . ., 115-M, 116-1, 116-2, 116-3, 116-4, 118-1, 118-2, 118-3, 118-4, 118-5, and 120; Figure 2 at 210; and Figure 3 at 310), collecting response information from the device based on the network management message (Abstract; page 3, line 32, through page 4, line 3; page 5, lines 21-26; page 6, line 28, through page 7, line 2; page 7, lines 14-21; page 11, line 30, through page 12, line 2; page 13, lines 8-12; page 15, lines 7-10; Figure 2 at 220; and Figure 3 at 320), receiving unsolicited information from the device

19

(Abstract; page 4, lines 3-4; page 5, line 27, through page 6, line 16; page 6, line 25, though page 7, line 2; page 7, lines 14-21; page 12, lines 3-14; page 12, line 32, through page 13, line 7; page 15, lines 7-10; Figure 2 at 230; and Figure 3 at 320), and analyzing the response information and the unsolicited information, which include information regarding device memory utilization (page 6, lines 6-10; page 7, lines 5-11; page 8, lines 10-12 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 10, line 31, through page 11, line 2; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), buffer utilization (page 7, lines 5-11; page 8, lines 12-14 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 12, lines 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), local area network (LAN) utilization (page 6, lines 6-10; page 10, line 31, through page 11, line 2; and page 12, lines 7-10), and cyclical redundancy checking (CRC) (page 7, lines 5-11; page 8, lines 12-14; page 10, lines 22-26; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, lines 28-30), according to a set of heuristics to provide a health measurement of the device (Abstract; page 4, lines 5-8; page 6, lines 6-12 and 17-27; page 7, lines 3-17; page 7, line 30, through page 10, line 3; page 10, line 11, through page 11, line 2; page 12, lines 7-10; page 12, line 15, through page 13, line 6; page 13, line 14, through page 15, line 2; page 15, lines 7-24; Figure 2 at 240; and Figure 3 at 320 and 330).

20

F.   Independent claim 34

Independent claim 34 recites a network management station (page 4, lines 26-31; page 5, lines 9-11 and 14-18; page 6, lines 28-33; page 7, line 33, through page 8, line 3; page 10, lines 5-7 and 11-12; page 11, lines 21-27; page 11, line 31, through page 12, line 2; page 12, lines 4-7; and Figure 1 at 112) that includes a processor (Page 5, lines 8-13 and 16-18), a memory coupled to the processor (page 5, lines 8-13 and 16-18), means for receiving solicited and unsolicited information from a network device, the unsolicited information initiated by and transmitted from the network device (Abstract; page 3, line 32, through page 4, line 4; page 4, line 12, through page 5, line 7; page 5, line 14, through page 6, line 16; page 6, line 25, through page 7, line 2; page 7, lines 5-11 and 14-21; page 8, lines 10-15; page 9, lines 15-24; page 10, lines 3-10; page 11, lines 4-12; page 11, line 18, through page 12, line 14; page 12, lines 21-27; page 12, line 32, through page 13, line 7; page 13, line 14, through page 14, line 2; page 15, lines 5-10; Figure 1 at 100, 110-1, 110-2, 110-3, 110-4, 110-5, 110-6, 110-7, 110-8, 110-9, 114-1, . . ., 114-N, 115-1, . . ., 115-M, 116-1, 116-2, 116-3, 116-4, 118-1, 118-2, 118-3, 118-4, 118-5, and 120; Figure 2 at 210, 220, and 230; and Figure 3 at 310 and 320), the solicited and unsolicited information including memory utilization (page 6, lines 6-10; page 7, lines 5-11; page 8, lines 10-12 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page 10, line 31, through page 11, line 2; page 12, lines 7-10, 17-21, and 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), buffer utilization (page 7, lines 5-11; page 8, lines 12-14 and 16-18; page 9, lines 15-24; page 10, lines 22-26; page

21

12, lines 24-27; page 12, line 32, through page 13, line 6; page 13, lines 19-21; page 13, line 28, through page 14, line 2; page 15, lines 7-10; and Figure 3 at 320), local area network (LAN) utilization (page 6, lines 6-10; page 10, line 31, through page 11, line 2; and page 12, lines 7-10), and cyclical redundancy checking (CRC) (page 7, lines 5-11; page 8, lines 12-14; page 10, lines 22-26; page 12, lines 7-10 and 24-27; page 12, line 32, through page 13, line 6; and page 14, lines 28-30), and means for analyzing the received solicited and unsolicited information collectively to provide a health measurement of the network device (Abstract; page 4, lines 5-8; page 6, lines 6-12 and 17-27; page 7, lines 3-13; page 7, line 30, through page 10, line 3; page 10, line 11, through page 11, line 2; page 12, line 15, through page 13, line 6; page 13, line 14, through page 15, line 2; page 15, lines 10-24; Figure 2 at 240; and Figure 3 at 330).

Independent claim 34 is argued together with dependent claims 35-39.

1.   Claim 35 is dependent from independent claim 34 and recites that the means for receiving solicited information includes executing instructions to send a simple network management protocol (SNMP) query to the network device (page 3, lines 7-11; page 5, lines 21-26; page 6, lines 19-22 and 28-32; page 7, lines 17-21; page 11, lines 18-21 and 24-29; and page 13, lines 8-10 and 15-18).

2.   Claim 36 is dependent from independent claim 34 and recites that the means for receiving unsolicited information initiated by and transmitted from the network device includes executing program instructions to record the unsolicited information (Abstract; page 4, lines 3-4; page 5, line 27, through page 6, line 16; page 6, line 25, through page 7, line 2; page 7, lines 14-21; page 12, lines 3-

22

14; page 12, line 32, through page 13, line 7; page 15, lines 7-10; Figure 2 at 230; and Figure 3 at 320) and to apply the unsolicited information as parameters in a heuristic analysis (Abstract; page 4, lines 5-8; page 6, lines 17-19 and 22-25; page 7, lines 3-13; page 7, line 30, through page 8, line 32; page 9, lines 7-24; page 12, lines 15-32; page 13, line 14, through page 14, line 2; page 14, lines 11-15 and 21-25; page 14, line 28, through page 15, line 2; page 15, lines 10-24; Figure 2 at 240; and Figure 3 at 330).

3. Claim 37 is dependent from dependent claim 36 and recites that the heuristic analysis includes program instructions that execute to assign pre-selected weight values to the solicited and unsolicited information to provide the health measurement (page 8, lines 16-28; page 9, lines 15-28; page 12, lines 27-32; and page 15, lines 13-17).

4. Claim 38 is dependent from dependent claim 37 and recites that the network management station further includes program instructions that execute to initiate network actions based on the health measurement (page 7, lines 21-29; page 9, lines 4-7 and 28-32; and page 14, lines 25-27).

5. Claim 39 is dependent from dependent claim 38 and recites that the network management station further includes program instruction that execute selectively modify one or more parameters in the heuristic analysis as suited to a particular type of network work and a particular type of network device (page 8, lines 16-28; page 9, lines 15-24; page 12, lines 27-32; page 15, lines 13-17).

23

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A.   Whether or not claims 1-6, 8-16, 18-19, and 21-37 are unpatentable under 35 USC § 103(a) as being obvious over Manghirmalani et al. (U.S. Patent No. 5,819,028)(Method and Apparatus for Determining the Health of a Network) in view of Buia et al. (U.S. Pub. No. 2004/0078683)(Systems and Methods for Managing and Analyzing Faults in Computer Networks) and in view of Baekelmans et al. (U.S. Patent No. 7,080,141)(Arrangement for Automated Fault Detection and Fault Restoration of a Network Device).

B.   Whether or not claims 7, 17, and 38-39 are unpatentable under 35 USC § 103(a) as being obvious over Manghirmalani et al. (U.S. Patent No. 5,819,028) in view of Buia et al. (U.S. Pub. No. 2004/0078683) in view of Baekelmans et al. (U.S. Patent No. 7,080,141) and further in view of Rayes et al. (U.S. Pub. No. 2005/0086502)(Policy-Based Network Security Management).

C.   Whether or not claim 20 is unpatentable under 35 USC § 103(a) as being obvious over Manghirmalani et al. (U.S. Patent No. 5,819,028) in view of Buia et al. (U.S. Pub. No. 2004/0078683) in view of Baekelmans et al. (U.S. Patent No. 7,080,141) and further in view of Shevenell et al. (U.S. Pub. No. 2004/0122645)(Method and Apparatus for the Simulation of Computer Networks).

VII. ARGUMENT

A.   Arguments against the rejections under § 103(a) over the Manghirmalani '028 reference in view of the Buia '683 and Baekelmans '141 references.

1.   Arguments regarding independent claims 1, 12, 18, 30, 33,

and 34.

a.   **For independent claims 1, 12, 18, 30, 33, and 34,**
the cited references do not teach, suggest, or render obvious each and every
element.

Appellant does not admit that the Buia '683 reference is indeed prior art and

reserves the right to swear behind at a future date. Nonetheless, in the interest in

advancing prosecution thereof, Appellant respectfully submits that the elements and

limitations of the claims of the present application are patentably distinguishable

from the teachings of the Manghirmalani '028, Buia '683, and Baekelmans '141

references for at least the following reasons.

Appellant notes that the Examiner stated on pages 3, 7, 9, 12-13, 14, and 16

of the Final Office Action dated August 22, 2008, that, with regard to independent

claims 1, 12, 18, 30, 33, and 34, respectively, the Manghirmalani '028 reference

fails to teach, "receiving unsolicited information from the device." However, the

Examiner went on to state that the Buia '683 reference teaches, "a network

management station receives unsolicited information from connected devices

(paragraph 25)."

Paragraph 0025, lines 9-21, of the Buia '683 reference states:

Using a network management protocol, the network management

station can deliver information or receive information by actively

polling the network entities or by receiving unsolicited information

from the network entities. Using SNMP, a network management

25

station can executes [sic] a set, get, or get-next functions to set and

retrieve information from a network entity. This information may be

stored within the polled network entity as Management Information

Base (MIB). The network management station can receive

unsolicited information from a network entity in the form of an

SNMP trap. Network entities may send SNMP traps to the network

management station when a problem in the network or network

entity occurs.

By so stating, the Buia '683 reference appears to describe a network

management station that can receive unsolicited information from network entities,

e.g., network devices. However, the Buia '683 reference does not describe that the

network management station can analyze the unsolicited information according to a

set of heuristics to provide a health measurement of the device. That is, the Buia

'683 reference does not describe that the network management station can apply

heuristics to the information from the unsolicited transmissions to determine a

health of the device. Rather, the Buia '683 reference appears to describe that the

unsolicited information is merely received by the network management station.

As such, Appellant respectfully submits that the Buia '683 reference does

not teach, suggest, or render obvious:

analyze the response information and the unsolicited

information, which include information regarding device memory

utilization, buffer utilization, local area network (LAN) utilization,

26

and cyclical redundancy checking (CRC), <u>according to a set of</u>

<u>heuristics to provide a health measurement of the device</u>

as presently recited in Appellant's independent claim 1. Nor does the Buia '683

reference teach, suggest, or render obvious:

<u>apply heuristics to the</u> received memory utilization, buffer

utilization, LAN utilization, and CRC <u>information from the</u> polling

and <u>unsolicited transmissions</u> collectively <u>to determine a health of</u>

<u>the device</u>

as presently recited in Appellant's independent claim 12. Nor does the Buia '683

reference teach, suggest, or render obvious:

<u>analyzing</u> the response information and <u>the unsolicited</u>

<u>information</u>, which include information regarding device memory

utilization, buffer utilization, local area network (LAN) utilization,

and cyclical redundancy checking (CRC), <u>according to a set of</u>

<u>heuristics to provide a health measurement of the device</u>

as presently recited in Appellant's independent claims 18 and 33. Nor does the

Buia '683 reference teach, suggest, or render obvious:

<u>applying heuristics to the</u> received memory utilization, buffer

utilization, LAN utilization, and CRC <u>information from the</u> polling

and <u>unsolicited transmissions</u> collectively <u>to determine a health of</u>

<u>the device</u> and the network

as presently recited in Appellant's independent claim 30. In addition, the Buia '683

reference does not teach, suggest, or render obvious:

27

means for <u>analyzing the</u> received solicited and <u>unsolicited</u>

<u>information</u> collectively <u>to provide a health measurement of the</u>

<u>network device</u>

as presently recited in Appellant's independent claim 34.

Appellant notes that the Examiner did not actually state that the Buia '683

reference taught such elements and limitations in the Final Office Action dated

August 22, 2008. Rather, the Examiner only stated that the Buia '683 reference

teaches a network management station that <u>receives</u> unsolicited information, as

presented above.

Additionally, Appellant respectfully submits that the Manghirmalani '028

and Baekelmans '141 references do not cure the deficiencies of the Buia '683

reference. That is, the Manghirmalani '028, Buia '683, and Baekelmans '141

references, alone or in combination, do not teach, suggest, or render obvious the

elements and limitations of independent claims 1, 12, 18, 30, 33, and 34, as

presented above.

As such, Appellant respectfully submits that the presently

claimed invention, as recited in independent claims 1, 12, 18, 30, 33, and 34,

is neither taught or suggested by, nor made obvious in view of, the

combination of the Manghirmalani '028, Buia '683, and Baekelmans '141

references. Accordingly, Appellant respectfully requests reconsideration

and withdrawal of the § 103(a) rejection of independent claims 1, 12, 18, 30,

33, and 34, as well as those claims that depend therefrom.

B.   Arguments against the rejections under § 103(a) over the

Manghirmalani '028 reference in view of the Buia '683, Baekelmans '141, and

Rayes '502 references.

    1.   Arguments regarding dependent claims 7, 17, 38, and 39.

        a.   **For dependent claims 7, 17, 38, and 39, the cited**

references do not teach, suggest, or render obvious each and every element.

Appellant's dependent claim 7 depends from independent claim 1,

Appellant's dependent claim 17 depends from independent claim 12, and

Appellant's dependent claims 38 and 39 depend from independent claim 34. For

the reasons presented above in section A1, Appellant respectfully submits that

independent claims 1, 12, and 34 are in condition for allowance.

From Appellant's review of the Rayes '502 reference, the Rayes '502

reference does not cure the deficiencies of the Manghirmalani '028, Buia '683, and

Baekelmans '141 references. That is, the Manghirmalani '028, Buia '683,

Baekelmans '141, and Rayes '502 references, alone or in combination, do not teach,

suggest, or render obvious:

        analyze the response information and the unsolicited

    information, which include information regarding device memory

    utilization, buffer utilization, local area network (LAN) utilization,

    and cyclical redundancy checking (CRC), according to a set of

    heuristics to provide a health measurement of the device

as presently recited in Appellant's independent claim 1,

29

receive memory utilization, <u>buffer utilization</u>, local

area network (LAN) utilization, and cyclical redundancy checking

(CRC) information in response to the polling and as unsolicited

information initiated by and transmitted from the device; and

apply heuristics to the received memory utilization,

<u>buffer utilization</u>, LAN utilization, and CRC <u>information from the</u>

polling and <u>unsolicited transmissions</u> collectively <u>to determine a</u>

<u>health of the device</u>

as presently recited in Appellant's independent claim 12, or

means for receiving solicited and unsolicited information

from a network device, the unsolicited information initiated by and

transmitted from the network device, the solicited and unsolicited

information including memory utilization, <u>buffer utilization</u>, local

area network (LAN) utilization, and cyclical redundancy checking

(CRC); and

means for <u>analyzing the</u> received solicited and <u>unsolicited</u>

<u>information</u> collectively <u>to provide a health measurement of the</u>

<u>network device</u>

as presently recited in Appellant's independent claim 34.

As such, Appellant respectfully submits that the presently claimed

invention, as recited in dependent claims 7, 17, 38, and 39, is neither taught or

suggested by, nor made obvious in view of, the combination of the Manghirmalani

'028, Buia '683, Baekelmans '141, and Rayes '502 references. Accordingly,

Appellant respectfully requests reconsideration and withdrawal of the § 103(a)

rejection of dependent claims 7, 17, 38, and 39.

    C.   Arguments against the rejections under § 103(a) over the

Manghirmalani '028 reference in view of the Buia '683, Baekelmans '141, and

Shevenell '645 references.

        1.   Arguments regarding dependent claim 20.

           a.   **For dependent claims 20, the cited references do**

not teach, suggest, or render obvious each and every element.

Appellant's dependent claim 20 depends from independent claim 18. For

the reasons stated above in section A1, Appellant respectfully submits that

independent claim 18 is in condition for allowance.

From Appellant's review of the Shevenell '645 reference, the Shevenell

'645 reference does not cure the deficiencies of the Manghirmalani '028, Buia '683,

and Baekelmans '141 references. That is, the Manghirmalani '028, Buia '683,

Baekelmans '141, and Shevenell '645 references, alone or in combination, do not

teach, suggest, or render obvious:

> <u>analyzing</u> the response information and <u>the unsolicited</u>
>
> <u>information</u>, which include information regarding device memory
>
> utilization, buffer utilization, local area network (LAN) utilization,
>
> and cyclical redundancy checking (CRC), <u>according to a set of</u>
>
> <u>heuristics to provide a health measurement of the device</u>

as presently recited in Appellant's independent claim 18.

31

As such, Appellant respectfully submits that the presently claimed invention, as recited in dependent claim 20, is neither taught or suggested by, or made obvious in view of, the combination of the Manghirmalani '028, Buia '683, Baekelmans '141, and Shevenell '645 references. Accordingly, Appellant respectfully requests reconsideration and withdrawal of the § 103(a) rejection of dependent claim 20.

32

CONCLUSION

Appellant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner and/or members of the Board are invited to telephone Appellant's attorney Edward J. Brooks III at (612) 236-0120 to facilitate this appeal.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 C.F.R. §1.8: The undersigned hereby certifies that this correspondence is being transmitted to the United States Patent and Trademark Office facsimile number (571) 273-8300, on this 27th day of October , 2008.

Alison L. Surendran
Name

[signature]
Signature

Respectfully Submitted,
Chuck A. Black

By his Representatives:

Brooks, Cameron & Huebsch, PLLC
1221 Nicollet Avenue, Suite 500
Minneapolis, MN 55403

[signature]

Atty: Edward J. Brooks III
Reg. No.: 40,925

_10/27/2008_
Date:

33

VIII. CLAIMS APPENDIX

1. (Previously Presented) A network management station, comprising:

a processor;

a memory coupled to the processor; and

program instructions provided to the memory and executable by the processor to:

transmit a network management message to a device connected to the network management station over a network;

collect response information from the device based on the network management message;

receive unsolicited information from the device; and

analyze the response information and the unsolicited information, which include information regarding device memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC), according to a set of heuristics to provide a health measurement of the device.

2. (Previously Presented) The network management station of claim 1, further including program instructions that execute to compare device processor utilization, device memory utilization, LAN utilization, errors, and trap information with one or more thresholds as parameters to the set of heuristics.

3. (Previously Presented) The network management station of claim 1, wherein the set of heuristics include as parameters; processor utilization, statistics including discards and frame check sequence (FCS) errors and number of broadcast, and traps, received as both solicited and unsolicited messages from the device.

4. (Previously Presented) The network management station of claim 1, further including program instructions that execute to analyze unsolicited messages initiated from the device to a management program, the unsolicited messages selected from the group of:

messages reporting successful events;

34

messages reporting a traffic threshold; and

messages reporting a non-functioning component on the device.

5. (Previously Presented) The network management station of claim 1, further including program instructions that execute to collectively analyze all of the collected and received information, both solicited and unsolicited, in order to formulate a health measurement for the device and for the network.

6. (Previously Presented) The network management station of claim 1, further including program instructions that execute to assign pre-selected weight values to the collected and received information, both solicited and unsolicited, as part of an applied heuristic and to use the weight values to provide the health measurement.

7. (Previously Presented) The network management station of claim 6, further including program instructions that execute to initiate network actions, based on the health measurement, to avoid potential issues with the device and the network.

8. (Previously Presented) The network management station of claim 1, further including program instruction that execute to implement different weight values to solicited and unsolicited information as parameters to the set of heuristics as suited to a particular type of network device.

9. (Previously Presented) The network management station of claim 1, further including program instruction that execute to implement different weight values to solicited and unsolicited information as parameters to the set of heuristics as suited to a particular type of network.

10. (Previously Presented) The network management station of claim 1, wherein the device and the station are connected over a LAN.

35

11. (Previously Presented) The network management station of claim 1, wherein the device and the station are connected over a wide area network (WAN).

12. (Previously Presented) A network management station, comprising:

a processor;

a memory coupled to the processor; and

program instructions provided to the memory and executable by the processor to:

poll a device, connected to the network management station over a network, with network management messages;

receive memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC) information in response to the polling and as unsolicited information initiated by and transmitted from the device; and

apply heuristics to the received memory utilization, buffer utilization, LAN utilization, and CRC information from the polling and unsolicited transmissions collectively to determine a health of the device.

13. (Previously Presented) The network management station of claim 12, further including program instructions which execute to display a visual indicator of the health of the device.

14. (Previously Presented) The network management station of claim 13, further including program instructions which execute to display additional detail report information upon a selection of the visual indicator.

15. (Previously Presented) The network management station of claim 12, further including program instructions that execute to register, as a parameter to the applied heuristics, that data traffic through a port of the device is being under utilized.

36

16. (Previously Presented) The network management station of claim 15, further including program instructions that execute to register, as a parameter to the applied heuristics, that the data traffic through a port on another network device is overburdened.

17. (Previously Presented) The network management station of claim 16, further including program instructions that execute to initiate an action based on the determined health of device in order to avoid a problem on the device and the network.

18. (Previously Presented) A method for network and network device monitoring, comprising:

transmitting a network management message to a device;

collecting response information from the device based on the network management message;

receiving unsolicited information from the device; and

analyzing the response information and the unsolicited information, which include information regarding device memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC), according to a set of heuristics to provide a health measurement of the device.

19. (Original) The method of claim 18, wherein the method further includes transmitting an SNMP message to the device.

20. (Original) The method of claim 19, wherein the method further includes receiving return information contained in a management information base (MIB) of the device.

21. (Original) The method of claim 18, wherein the method further includes transmitting an ICMP ping to the device.

37

22. (Original) The method of claim 18, wherein the method further includes receiving information using a telnet protocol.

23. (Original) The method of claim 18, wherein the method further includes receiving traps from the device.

24. (Previously Presented) The method of claim 18, wherein receiving unsolicited information includes unsolicited information relating to:

      processor utilization;

      and

      errors.

25. (Original) The method of claim 18, wherein receiving unsolicited information from the device includes receiving messages initiated from the device to a management program, including messages selected from the group of:

      messages reporting successful events;

      messages reporting a traffic threshold; and

      messages reporting a non-functioning component on the device.

26. (Original) The method of claim 18, wherein the method further includes receiving a message, initiated from the device to a management program, which reports that a packet of data has been successfully sent from a port on the device.

27. (Original) The method of claim 18, wherein the method further includes receiving a message, initiated from the device to a management program, which reports that the device is over burdened with traffic and may crash.

28. (Original) The method of claim 18, wherein the method further includes receiving a message, initiated from the device to a management program, which reports that a port on the device is not functioning.

29. (Previously Presented) The method of claim 18, wherein analyzing according to a set of heuristics includes a heuristic having parameters selected from the group of:

    a processor utilization;

    a link up/down status;

    a trap receipt;

    a discard receipt;

    and

    a FCS statistic.

30. (Previously Presented) A method for network and network device monitoring, comprising:

    polling a device with network management messages;

    receiving memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC) information in response to the polling and as unsolicited information initiated by and transmitted from the device; and

    applying heuristics to the received memory utilization, buffer utilization, LAN utilization, and CRC information from the polling and unsolicited transmissions collectively to determine a health of the device and the network.

31. (Original) The method of claim 30, wherein the method further includes displaying a visual indicator of the determined health.

32. (Original) The method of claim 31, wherein the method further includes accessing additional report information by selecting the visual indicator.

33. (Previously Presented) A computer readable medium having instructions for causing a device to perform a method, comprising:

    transmitting a network management message to a device;

    collecting response information from the device based on the network management message;

receiving unsolicited information from the device; and

analyzing the response information and the unsolicited information, which include information regarding device memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC), according to a set of heuristics to provide a health measurement of the device.

34. (Previously Presented) A network management station, comprising:

a processor;

a memory coupled to the processor;

means for receiving solicited and unsolicited information from a network device, the unsolicited information initiated by and transmitted from the network device, the solicited and unsolicited information including memory utilization, buffer utilization, local area network (LAN) utilization, and cyclical redundancy checking (CRC); and

means for analyzing the received solicited and unsolicited information collectively to provide a health measurement of the network device.

35. (Previously Presented) The network management station of claim 34, wherein the means for receiving solicited information includes executing instructions to send a simple network management protocol (SNMP) query to the network device.

36. (Previously Presented) The network management station of claim 34, wherein the means for receiving unsolicited information initiated by and transmitted from the network device includes executing program instructions to record the unsolicited information and to apply the unsolicited information as parameters in a heuristic analysis.

37. (Previously Presented) The network management station of claim 36, wherein the heuristic analysis includes program instructions that execute to assign pre-selected weight values to the solicited and unsolicited information to provide the health measurement.

40

38. (Previously Presented) The network management station of claim 37, further including program instructions that execute to initiate network actions based on the health measurement.

39. (Previously Presented) The network management station of claim 38, further including program instruction that execute selectively modify one or more parameters in the heuristic analysis as suited to a particular type of network work and a particular type of network device.

41

IX. EVIDENCE APPENDIX

No evidence is submitted

X. RELATED PROCEEDINGS APPENDIX

As there are no appeals or interferences known to Appellant which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal, there are no copies of decisions rendered by a court or the Board to submit.

42